

CLAIMS

What is claimed is:

1. An apparatus comprising:
 - a foam containment unit adapted to contain a foam produced from a combination of at least two foam precursor components;
 - a foam precursor storage unit, which includes a first compartment adapted to hold a first foam precursor component, and a second compartment adapted to hold a second foam precursor component until the first foam precursor component and the second foam precursor component are released; and
 - a foam precursor heating unit, located in thermal proximity to the foam precursor storage unit and operable to provide thermal energy for increasing a temperature of one or more of the at least two foam precursor components.
2. The apparatus of claim 1, wherein the foam precursor storage unit and the foam precursor heating unit are located within an interior cavity of the foam containment unit.
3. The apparatus of claim 1, wherein the foam precursor storage unit and the foam precursor heating unit are located outside the foam containment unit.
4. The apparatus of claim 3, wherein the apparatus further comprises a delivery mechanism adapted to deliver the first foam precursor component and the second foam precursor component to an interior cavity of the foam containment unit.
5. The apparatus of claim 1, further comprising:
 - the first foam precursor component, which includes diisocyanate; and
 - the second foam precursor component, which includes a polyol.
6. The apparatus of claim 1, wherein the foam precursor storage unit includes a top portion and a bottom portion formed from a flexible material.

7. The apparatus of claim 6, further comprising a mixing chamber adapted to receive and mix the first foam precursor and the second foam precursor.
8. The apparatus of claim 1, wherein the foam precursor storage unit includes:
 - a top portion formed from a flexible material; and
 - a bottom portion formed from a substantially rigid material.
9. The apparatus of claim 8, further comprising a mixing chamber adapted to receive and mix the first foam precursor and the second foam precursor.
10. The apparatus of claim 1, wherein the foam precursor storage unit includes:
 - a syringe having a first compartment adapted to contain the first foam precursor component, and a second compartment adapted to contain the second foam precursor component; and
 - a plunger for extruding the first foam precursor and the second foam precursor.
11. The apparatus of claim 10, further comprising a mixing chamber adapted to receive and mix the first foam precursor and the second foam precursor.
12. The apparatus of claim 1, wherein the foam precursor heating unit comprises:
 - a first compartment adapted to contain a first heat-producing component; and
 - a phase change trigger mechanism located in proximity to the first compartment, which is adapted to agitate the first heat-producing component in response to a triggering event, and wherein agitation of the first heat-producing component results in an exothermic reaction.
13. The apparatus of claim 12, further comprising the first heat-producing component, wherein the first heat-producing component includes a supercooled liquid.
14. The apparatus of claim 12, wherein the phase change trigger mechanism includes a physical agitation device.

15. The apparatus of claim 1, wherein the foam precursor heating unit comprises:
 - a first compartment adapted to contain a first heat precursor component;
 - a second compartment adapted to contain a second heat precursor component;and

a mechanism that enables the first heat precursor component and the second heat precursor component to combine in response to a triggering event, and wherein a combination of the first heat precursor component and the second heat precursor component produces an exothermic reaction.
16. The apparatus of claim 15, wherein the mechanism includes a frangible barrier.
17. The apparatus of claim 15, wherein the mechanism includes a separate containment unit.
18. The apparatus of claim 15, further comprising:
 - the first heat precursor component, which includes a supercooled liquid; and
 - the second heat precursor component, which includes a crystallized counterpart of the supercooled liquid.
19. The apparatus of claim 15, further comprising:
 - the first heat precursor component, which includes a fuel; and
 - the second heat precursor component, which includes an oxidizer.
20. The apparatus of claim 1, wherein the foam precursor heating unit comprises:
 - a heating element.
21. The apparatus of claim 20, wherein the foam precursor heating unit further comprises:
 - an electrical energy supply device; and
 - an activation mechanism.

22. The apparatus of claim 21, wherein:
 - the heating element includes a coil;
 - the electrical energy supply device includes a battery; and
 - the activation mechanism includes a switch.
23. An apparatus comprising:
 - a foam containment unit adapted to contain a foam produced from a combination of at least two foam precursor components;
 - a foam precursor storage unit, which includes a first compartment adapted to hold a first foam precursor component, and a second compartment adapted to hold a second foam precursor component until the first foam precursor component and the second foam precursor component are released; and
 - a foam precursor heating unit, located in thermal proximity to the foam precursor storage unit and operable to provide thermal energy for increasing a temperature of one or more of the at least two foam precursor components, wherein the foam precursor heating unit includes
 - a first compartment adapted to contain a first heat-producing component, and
 - a phase change trigger mechanism located in proximity to the first compartment, which is adapted to agitate the first heat-producing component in response to a triggering event, and wherein agitation of the first heat-producing component results in an exothermic reaction.
24. The apparatus of claim 23, further comprising the first heat-producing component, wherein the first heat-producing component includes a supercooled liquid.
25. The apparatus of claim 23, wherein the phase change trigger mechanism includes a physical agitation device.

26. An apparatus comprising:

- a foam containment unit adapted to contain a foam produced from a combination of at least two foam precursor components;
- a foam precursor storage unit, which includes a first compartment adapted to hold a first foam precursor component, and a second compartment adapted to hold a second foam precursor component until the first foam precursor component and the second foam precursor component are released; and
- a foam precursor heating unit, located in thermal proximity to the foam precursor storage unit and operable to provide thermal energy for increasing a temperature of one or more of the at least two foam precursor components, wherein the foam precursor heating unit includes
 - a first compartment adapted to contain a first heat precursor component,
 - a second compartment adapted to contain a second heat precursor component, and
 - a mechanism that enables the first heat precursor component and the second heat precursor component to combine in response to a triggering event, and wherein a combination of the first heat precursor component and the second heat precursor component produces an exothermic reaction.

27. The apparatus of claim 26, further comprising:

- the first heat precursor component, which includes a supercooled liquid; and
- the second heat precursor component, which includes a crystallized counterpart of the supercooled liquid.

28. The apparatus of claim 26, further comprising:

- the first heat precursor component, which includes a fuel; and
- the second heat precursor component, which includes an oxidizer.

29. An apparatus comprising:

- a foam containment unit adapted to contain a foam produced from a combination of at least two foam precursor components;

a foam precursor storage unit, which includes a first compartment adapted to hold a first foam precursor component, and a second compartment adapted to hold a second foam precursor component until the first foam precursor component and the second foam precursor component are released; and

a foam precursor heating unit, located in thermal proximity to the foam precursor storage unit and operable to provide thermal energy for increasing a temperature of one or more of the at least two foam precursor components, wherein the foam precursor heating unit includes a heating element.

30. The apparatus of claim 29, wherein the foam precursor heating unit further comprises:

an electrical energy supply device; and
an activation mechanism.

31. The apparatus of claim 30, wherein:

the heating element includes a coil;
the electrical energy supply device includes a battery; and
the activation mechanism includes a switch.